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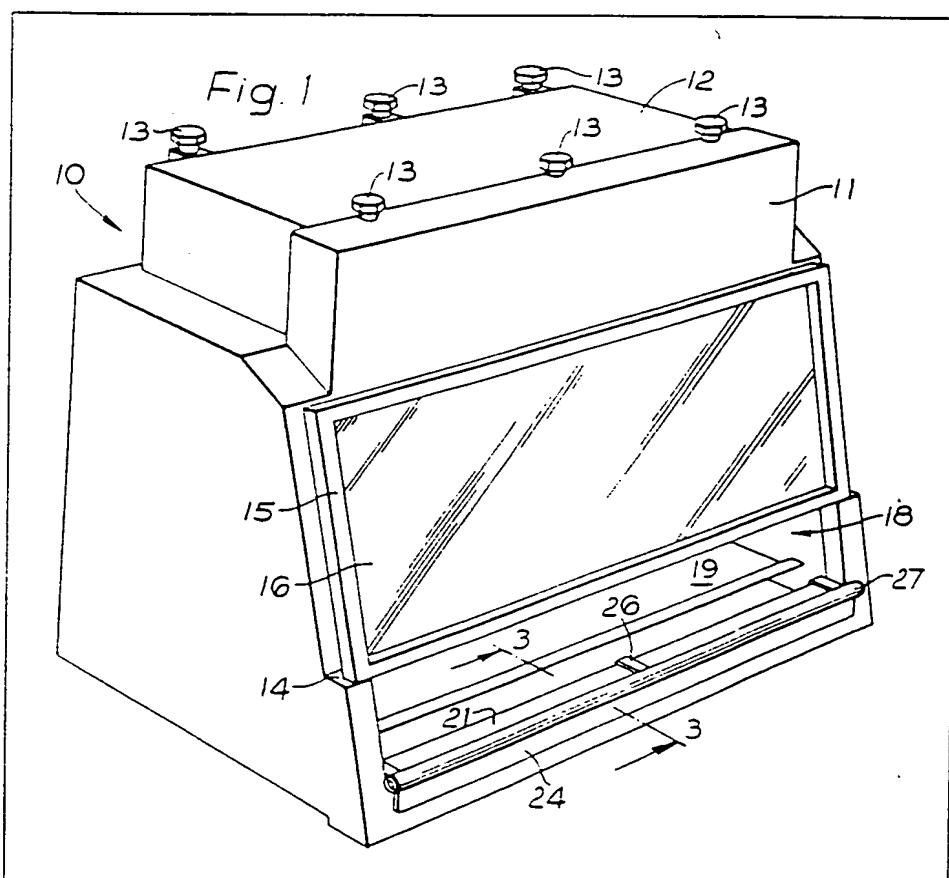
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54 Air conditioned safety cabinet

(57) A safety cabinet provided with fan and filters comprising a housing having a closure door 15, which has a transparent front window 16, below which is an opening 18 permitting access to a working chamber in the interior of the housing. To increase the

comfort of the user when working in the chamber with his hands, the lower extremity of the opening 18 has an arm rest in the form of a horizontal cross-member to which is attached a covering 27 of a resilient material on which the user can rest his forearms. Although shown as being detachable, the arm rest can be an integral part of the lower extremity of the opening 18.



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SPECIFICATION
Air conditioned safety cabinet

This invention concerns air conditioned safety cabinets of the kind (hereinafter referred to as "of the kind described") comprising a housing part of the interior of which constitutes a working chamber having a transparent front window below which is an opening by which a user can insert his hands and forearms to work in said chamber, a fan and filters being provided for propelling filtered air through the housing so that external air is drawn into the working chamber by way of the opening, thereby minimising the risk of the user being contaminated by material being worked upon.

5 Safety cabinets of this kind are known in various forms. They are used, for instance, for the performance of microbiological assays and other operations of all kinds where an operative requires to be protected against the risk of coming into 10 contact with or being contaminated with the materials being worked upon.

When working in such a cabinet, the user will, during a substantial proportion of his time, rest his forearms on the front edge of the floor of the 15 working chamber and/or upon a cross-member defining the bottom of the opening through which his arms are inserted. Practical tests and experience show that, with the known 20 constructions of cabinet wherein such front edge or cross-member are substantially right-angled, this resting of the user's arms can be restricting on the blood flow at the underside of the forearm; furthermore it can be uncomfortable and fatiguing to the user.

30 35 An object of the present invention is to provide an arrangement wherein this disadvantage is obviated or minimised.

With this object in view, the present invention provides an air conditioned safety cabinet of the 40 kind described characterised in that it has, across the lower extremity of the opening, an arm rest which presents to the user a convex surface of resilient or yielding material.

45 Advantageously, the lower extremity of the opening is defined by a portion of the front side which is bent inward of the working chamber and which over its major part extends in the same plane as the plane of the cabinet's floor panel and over its minor part extends downward at a right angle to said plane.

50 55 The arm rest may be in the form of a horizontal cross-member which comprises an upwardly projecting portion, a rearwardly and concavely projecting portion, continuous with the latter portion and three spaced-apart u-shaped hooks extending rearwardly of and substantially at right angles to the concavely projecting portion, said concavely projecting portion bearing a covering of resilient or yielding material.

60 65 Advantageously, the cross-member is secured to the lower extremity of the opening by means of its hooks engaging over the portion of the front side.

Alternatively, the major part of the portion of

65 the front side may be a concave fairing providing a channel which extends the entire length of the lower extremity of the opening and into which is secured a covering of resilient material or yielding, said covering constituting an arm rest which is an integral part of the safety cabinet.

70 In yet a further alternative, the arm rest may be provided by a cross-member across the lower edge of a pivoted front closure of the cabinet, this cross-member defining the lower edge of the opening, this cross-member being convex and having a covering of resilient or yielding material.

75 The resilient and yielding material is conveniently tubular and of a plastics foam or rubber material.

80 The invention will be described further, by way of example, with reference to the accompanying drawings, it being understood that the following description is illustrative, and not limitative, of the scope of the invention.

85 In the drawings:—

Fig. 1 is a perspective view of a preferred embodiment of the safety cabinet of the invention;

Fig. 2 is a cross-sectional on the line 3—3 of Fig. 1;

90 Fig. 3 is an exploded perspective view of an arm rest which is part of the preferred embodiment of Fig. 1; and

95 Fig. 4 is a view similar to Fig. 2 but showing a modification of part of the preferred embodiment of Fig. 1.

Referring firstly to Fig. 1, the preferred embodiment of the air-conditioned safety cabinet according to the invention comprises a housing 10, which is box-like in shape, for instance, for 100 being supported upon a work-bench (not shown) with a front side 11 thereof facing forwards relative to the bench, so that a user sitting at the bench can have ready access thereto. The housing 10 is made of metal, but of course it can also be 105 made of any other which is suitably resistant to corrosion. Its interior is appropriately partitioned and constructed to incorporate a working chamber, and encloses also an impeller fan and HEPA filters (not shown). Access to the impeller 110 fan and the filters is gained by removal of an oblong cover 12 secured to the top of the housing 10 by means of six threaded bolts 13.

The front side 11 of the housing 10, which front side 11 slopes downward and outward with 115 respect to the rear of the housing 10 and is formed with a step 14, is open to the working chamber, and has pivotally secured thereto a closure door 15 which swings about a horizontal pivot (not shown) across the top of the door 15, and incorporates a window 16 through which the user can observe the interior of the working chamber. The closure door 15 is shorter in height than the height of the aperture in the front side 11 of the housing 10, the bottom edge of the door 15 120 contacting the step 14 when said door 15 is closed, with the result that there is defined, below the door 15, an opening 18 through which the user may insert his hands and arms to work within the working chamber.

125

The bottom of the working chamber is defined by a substantially horizontal floor panel 19 which extends to close to the bottom edge of the opening 18 just referred to.

5 The bottom edge of the opening 18 is defined by a portion 21 of the front side 11 which is bent inward of the working chamber and which over its major part extends in the same plane as the plane of the floor panel 19 and over its minor part

10 extends at a right angle to said plane. The floor panel's edge 22 is substantially an inverted L-shape and there is a gap between said edge 22 and the bottom edge of the opening 18.

15 With reference to Figs. 1 and 3, but more particularly Fig. 2, an arm rest 23, in the form of a horizontal cross-member which comprises an upwardly projecting portion 24, a rearwardly and concavely projecting portion 25 continuous with the portion 24 and three spaced-apart u-shaped hooks 26 extending rearwardly of and substantially at a right angle to said portion 25, is secured to the bottom edge of the opening 18 by means of said hooks engaging the portion 21 of the front side 11. Secured to the rearwardly and

20 convexly projecting portion 25, for example by means of an adhesive, and facing outwardly of the bottom edge of the opening 18 is a tubular covering 27 of a resilient and yielding material, such as polyurethane foam.

25 With this arrangement, when the user rests his forearms down on the arm rest 23, the resilient tubular covering 27 provides a comfortable support. Restriction of blood flow is minimised as also is discomfort experienced by the user.

30 As is usual with such cabinets, the fan and filters, in the cabinet, are operative to cause filtered air to be passed downwards through the working chamber and then recirculated, part being diverted to atmosphere after appropriate filtering, and part being returned to the working chamber. This ensures that there is a positive inflow of air, from the outside of the cabinet, through the opening, effective to ensure that the user will not be contaminated by material being worked upon

35 within the cabinet.

40 Referring to Fig. 4, by suitable modification of the preferred safety cabinet there is no need to provide a separate arm rest such as the arm rest 23 of Fig. 2. In the modified safety cabinet the major part of the portion 21 of the front side 11, which portion as aforesaid defines the bottom edge of the opening 18, is a concave fairing providing a channel which extends the entire length of the bottom edge of the opening and into

45 which is secured e.g. by adhesive, a tubular covering 28 of a resilient and yielding material, such as polyurethane foam. The channel and the tubular covering 28 constitute an arm rest which is an integral part of the safety cabinet. As with the arm rest 23 of Figs. 1 to 3, the arm rest of Fig. 4 provides a comfortable support when a user rests his forearms on the covering 26.

50 The invention is not confined to the precise details of the foregoing but modifications can be

55 made thereto within the scope of the following

70 claims. Thus, for example, the closure door may be constructed so that a frame thereof incorporates in its upper part of the window, whilst the lower part thereof includes a substantially horizontal cross-member substantially in register with the front edge of the floor panel. This cross member is of convex or circular form, curving upwardly and rearwardly, similar to the arm rest of Figs. 1 to 3 and is similarly padded with a layer of resilient and yielding material which affords comfort to the user and minimises fatigue.

CLAIMS

1. An air conditioned safety cabinet of the kind comprising a housing part of the interior of which constitutes a working chamber having in its front side a transparent front window below which is an opening by which a user can insert his hands and forearms to work in said chamber, a fan and filters being provided for propelling filtered air through the housing, so that external air is drawn into the working chamber by way of the opening, thereby minimising the risk of the user being contaminated by material being worked upon, characterised in that it has, across the lower extremity of the opening, an arm rest which presents to the user a convex surface of resilient or yielding material.

2. A cabinet as claimed in claim 1 wherein the lower extremity of the opening is defined by a portion of the front side which is bent inward of the working chamber and which over its major part extends in the same plane as the plane of the cabinet's floor panel and over its minor part extends downward at right angle to said plane.

3. A cabinet as claimed in claim 1 or 2 wherein the arm rest is in the form of a horizontal cross-member which comprises an upwardly projecting portion, a rearwardly and concavely projecting portion continuous with the latter portion, and three spaced-apart u-shaped hooks extending rearwardly and substantially at right angles to the concavely projecting portion, said concavely projecting portion bearing a covering of resilient or yielding material.

4. A cabinet as claimed in claim 3 wherein the cross-member is secured to the lower extremity of the opening by means of its hooks engaging over the portion of the front side.

5. A cabinet as claimed in claims 1 or 2 wherein the major part of the portion of the front side is a concave fairing providing a channel which extends over the entire length of the lower extremity of the opening and into which is secured a covering of resilient or yielding material, said covering constituting an arm rest which is an integral part of the safety cabinet.

6. A cabinet as claimed in claim 1 wherein the arm rest is provided by a cross-member across the lower edge of a pivoted front closure of the cabinet, the cross-member defining the lower edge of the opening, this cross-member being convex and having a covering of resilient or yielding material.

7. A cabinet as claimed in any preceding claim wherein the resilient or yielding material is

conveniently tubular and of a plastics foam or rubber material.

8. An air conditioned safety cabinet

substantially as hereinbefore described with
5 reference to and as illustrated in Figs. 1, 2 and 3,
or in Fig. 4.

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